Progamming Guide

Matrix Switchers

DTP CrossPoint 84 IPCP

Scaling Presentation Matrix Switchers with DTP Extension

Extron Electronics

INTERFACING, SWITCHING AND CONTROL

68-2349-61 Rev. Ax3
07 14

Safety Instructions

Safety Instructions • English

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ATTENTION: This symbol, ⚠, when used on the product, is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

For information on safety guidelines, regulatory compliances, EMI/EMF compatibility, accessibility, and related topics, see the Extron Safety and Regulatory Compliance Guide, part number 68-290-01, on the Extron website, **www.extron.com.**

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Chinese Simplified（简体中文）

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Korean

경고: 이 기호 ⚠, 가 제품에 사용될 경우, 제품의 인클로저 내에 있는 접지되지 않은 위험한 전류로 인해 사용자가 감전될 위험이 있음을 경고합니다.

주의: 이 기호 ⚠, 가 제품에 사용될 경우, 장비와 함께 제공된 책자에 나와 있는 주요 운영 및 유지보수(정비) 지침을 경고합니다.

안전 가이드라인, 규제 준수, EMI/EMF 호환성, 접근성, 그리고 관련 항목에 대한 자세한 내용은 Extron 웹 사이트(**www.extron.com**)의 Extron 안전 및 규제 준수 안내서, 68-290-01 조항을 참조하십시오.

Programming Guide

The DTP CrossPoint Matrix Switcher can be remotely controlled and configured via SIS commands (see below)

This section describes the operation of the DTP CrossPoint Matrix Switchers via SIS commands, including:

- **Host Control Ports**
- **Host-to-Switcher Instructions**
- **Switcher-Initiated Messages**
- **Switcher Error Responses**
- **Using the Command and Response Tables**
- **Special Characters**

Host Control Ports

The switcher has one serial port, a USB port, and three Ethernet LAN ports. Any of these ports can be connected to a host device such as a computer running the Extron DataViewer utility or the HyperTerminal utility or a control system. These ports make control of the switcher possible.

The rear panel Remote port and front panel Configuration port are independent of one another. A front panel Configuration port connection and a rear panel Remote port connection can be active at the same time.

Serial Port

The rear panel Remote port is an RS-232 serial port on a 3-pin captive screw connector.

The default serial port protocol of the rear panel Remote port is:

- 9600 baud
- No parity
- 8 data bits
- No flow control
- 1 stop bit

Extron recommends leaving the Remote port at 9600 baud.

USB Port

The front panel Configuration port is a standard USB port. A USB cable, terminated on one end with a mini USB B male connector, is available at any local electronics store.

NOTE: Before you use the Configuration (USB) port for the first time, you need to install and activate the USB driver on your computer. The simplest way to do this is to install and run the Product Configuration Software and then run the Found New Hardware Wizard.

Ethernet (LAN) Port

The Ethernet cable can be terminated as a straight-through cable or a crossover cable and must be properly terminated for your application.

- **Crossover cable** — Direct connection between the computer and the DTP CrossPoint switcher.
- **Patch (straight-through) cable** — Connection of the DTP CrossPoint switcher to an Ethernet LAN.

Default IP addresses

To access the DTP CrossPoint switcher via the LAN port, you need the IP address for the unit, and may need the subnet mask and the gateway address. If the IP address has been changed to an address comprised of words and characters, you can determine the actual numeric IP address using the ping (ICMP) utility. If the addresses have not been changed, the factory-specified defaults are:

	DTP CrossPoint 84	IPCP 350 Pro
• **IP address**	192.168.254.254	192.168.254.250
• **Subnet mask**	255.255.0.0	255.255.255.0
• **Gateway address**	0.0.0.0	0.0.0.0

NOTES:

- The values listed above are the same for all three LAN ports.
- The LAN ports give access to either the DTP CrossPoint or the built-in IPCP 350 Pro controller.
- The unused ports function as a simple, multiport, unmanaged network switch so that you can connect additional devices to the same network.

Establishing a Connection

Establish a network connection to a DTP CrossPoint switcher as follows:

1. Open a TCP socket to port 23 using the IP address of the switcher.

   NOTE: If the local system administrators have not changed the value, the factory-specified default, 192.168.254.254, is the correct value for this field.

   The switcher responds with a copyright message including the date, the name of the product, firmware version, part number, and the current date and time.

   NOTES:

   - If the switcher is **not** password-protected, the device is ready to accept SIS commands immediately after it sends the copyright message.
   - If the switcher **is** password-protected, a `password` prompt appears below the copyright message.

2. If the switcher is password protected, enter the appropriate administrator or user password.

   If the password is accepted, the switcher responds with `Login User` or `Login Administrator`.

   If the password is not accepted, the `Password` prompt reappears.

Connection Timeouts

The Ethernet link times out after a designated period of time of no communications. By default, this timeout value is set to five minutes but the value can be changed. See the **Configure port timeout** SIS commands on page 19.

NOTE: Extron recommends leaving the default timeout at 5 minutes and periodically issuing the Query (`Q`) command to keep the connection active. If there are long idle periods, Extron recommends disconnecting the socket and reopening the connection when another command must be sent.

Number of Connections

A DTP CrossPoint switcher can have up to 200 simultaneous TCP connections, including all http sockets and telnet connections. When the connection limit is reached, the switcher accepts no new connections until some have been closed. No error message or indication is given that the connection limit has been reached. To maximize performance of an IP device, the number of connections should stay low and unnecessary open sockets should be closed.

Using Verbose Mode

Telnet connections to a DTP CrossPoint switcher can be used to monitor for changes that occur on the switcher, such as front panel operations and SIS commands from other telnet sockets or a serial port. For a telnet session to receive change notices from the switcher, the telnet session must be in verbose mode 1 or 3. See the **Verbose Mode** SIS commands on page 19.

Host-to-Switcher Instructions

The switcher accepts SIS (Simple Instruction Set) commands through the rear panel Remote RS-232 port, the front panel Configuration port, and the rear panel Ethernet (LAN) Port. SIS commands consist of one or more characters per command field. They do not require any special characters to begin or end the command character sequence. Each switcher response to an SIS command ends with a carriage return and a line feed (CR/LF = ↵), which signals the end of the response character string. A string is one or more characters.

Switcher-initiated Messages

When a local event such as a front panel operation occurs, the switcher responds by sending a message to the host. The switcher-initiated messages are listed below (underlined).

The switcher does not expect a response from the host, but, for example, the host program might request a new status.

`(c) Copyright 20yy, Extron Electronics DTPCP84, Vx.xx, 60-nnnn-nn`↵
`{day, date, time}`↵

The switcher initiates the `Copyright` message on the Remote RS-232 port when it is first powered up and on a newly connected Internet protocol (IP) port. `Vx.xx` is the firmware version number and `60-nnnn-nn` is the switcher part number.

`Password:`↵

The switcher initiates the `Password` message immediately after the copyright message when the controlling system is connected using TCP/IP or Telnet and the switcher is password protected. This message means that the switcher requires an administrator or user level password before it will perform the commands entered via this link. The switcher repeats the password message response for every entry other than a valid password until a valid password is entered.

↵`Login Administrator`↵

↵`Login User`↵

The switcher initiates the `Login` message when a correct administrator or user password has been entered. If the user and administrator passwords are the same, the switcher defaults to administrator privileges.

`Qik`↵

The switcher initiates the `Qik` message when a front panel tie creation has occurred.

`Rprnn`↵

The switcher initiates the `Rpr` message when a memory preset has been recalled from the front panel. "*nn*" is the preset number.

`Amtnn*x`↵

The switcher initiates the `Amt` message when an output audio mute is toggled on or off from the front panel. *nn* is the output number and *x* is the mute status: 1 = on, 0 = off.

`GrpmDn*y`↵

The switcher initiates the `Grpm` message when a front panel Volume knob is adjusted. "*n*" is the control: 1 (Mic Volume) or 2 (Volume)."*y*" is the variable.

`Exen`↵

The switcher initiates the `Exe` message when the front panel security lockout (executive mode) is toggled on or off from the front panel. "*n*" is the executive mode: 0, 1, or 2.

Switcher Error Responses

When the switcher receives an SIS command and determines that it is valid, it performs the command and sends a response to the host device. If the switcher is unable to perform the command because the command is invalid or contains invalid parameters, the switcher returns an error response to the host. The error response codes are:

E01 — Invalid input channel number (out of range)
E10 — Invalid command
E11 — Invalid preset number (out of range)
E12 — Invalid output number (out of range)
E13 — Invalid value (out of range)
E14 — Invalid command for this configuration
E22 — Busy
E24 — Privileges violation (Users have access to all view and read commands [other than the administrator password], and can create ties, presets, and audio mutes
E25 — Device not present
E26 — Maximum number of connections exceeded
E27 — Invalid event number
E28 — Bad filename / file not found

Using the Command and Response Tables

The command and response table begins on **page 9**. Symbols used in the table represent variables in the command and response fields. Command and response examples are shown throughout the table. The SIS commands are **not** case sensitive. The ASCII to HEX conversion table below is for use with the command and response table.

Space →

ASCII to Hex Conversion Table										Esc	1B	CR	0D	LF	0A
	20	!	21	"	22	#	23	$	24	%	25	&	26	'	27
(	28	)	29	*	2A	+	2B	,	2C	-	2D	.	2E	/	2F
0	30	1	31	2	32	3	33	4	34	5	35	6	36	7	37
8	38	9	39	:	3A	;	3B	<	3C	=	3D	>	3E	?	3F
@	40	A	41	B	42	C	43	D	44	E	45	F	46	G	47
H	48	I	49	J	4A	K	4B	L	4C	M	4D	N	4E	O	4F
P	50	Q	51	R	52	S	53	T	54	U	55	V	56	W	57
X	58	Y	59	Z	5A	[	5B	\	5C	]	5D	^	5E	_	5F
`	60	a	61	b	62	c	63	d	64	e	65	f	66	g	67
h	68	i	69	j	6A	k	6B	l	6C	m	6D	n	6E	o	6F
p	70	q	71	r	72	s	73	t	74	u	75	v	76	w	77
x	78	y	79	z	7A	{	7B	|	7C	}	7D	~	7E	DEL	7F

Command and Response Table for Matrix Switcher Commands

Symbol definitions

↵ = Carriage return and line feed

← = Carriage return (no line feed)

| = Pipe (can be used interchangeably with the ← character)

• = space

Esc = Escape key

W = Can be used interchangeably with the Esc character

X1 = Input number — ØØ – Ø8 (ØØ = untied input, valid for tie commands only)

X2 = Output number — ØØ – Ø4 (ØØ = untied output, valid for tie commands only)

X3 = EDID value (resolution and rate) — See **table 1** on page 10.

X4 = EDID filename — *nnnnn*.bin. Can include a full path name. File carries 128 or 256 bytes of data.

X5 = Enable or available — Ø = Disable or not available; 1 = Enable or available

X6 = Input audio source
Ø = Auto (see the example on **page 11**)
1 = HDMI (de-embedded digital audio) (**default**)
2 = Analog 2-channel audio

X7 = Output audio source — Ø = Original HDMI audio; 1 = Embed audio; 2 = None

X8 = Detected input audio format
Ø = None
1 = 2-channel
2 = 3-channel or bitstream

X9 = HDCP authorized device — Ø = Off; 1 = On (**default**)

X10 = HDCP output — Ø = Auto; 1 = On (always encrypted)

X11 = HDCP status (for inputs) — Ø = No source device connected; 1 = Source connected is HDCP-compliant; 2 = Source connected is not HDCP-compliant

X12 = HDCP status (for outputs)
Ø = No monitor connected
1 = Monitor connected but does not support HDCP
2 = Monitor connected, supports HDCP, but the video signal is not encrypted
3 = Monitor connected, supports HDCP, and the video signal is encrypted

X13 = Video format
Ø = Auto (HDMI RGB Full to CEA sink or DVI to non-CEA sink)
1 = DVI (RGB 444, no audio, no InfoFrames)
2 = HDMI RGB Full (RGB 444, 000 - 255 audio, InfoFrames)
3 = HDMI RGB Limited (RGB 444, 016 - 255 audio, InfoFrames)
4 = HDMI YUV Full (RGB 444, 000 - 255 audio, InfoFrames)
5 = HDMI YUV Limited (RGB 444, 016 - 255 audio, InfoFrames)
6 = HDMI YUV Full (RGB 422, 000 - 255 audio, InfoFrames)
7 = HDMI YUV Limited (RGB 422, 016 - 255 audio, InfoFrames)

X14 = Output video bit depth — Ø = Auto (**default**); 1 = 8-bit

X15 = Video mute status
Ø = No mutes
1 = Video mute
2 = Video and sync

X16 = Input signal status — Ø = No signal detected; 1 = Sync detected

X17 = TP and insertion input number — Ø7 or Ø8

X18 = Switch position — Ø = DTP; 1 = HDBT (output only); 2 = XTP

X19 = TP (scaled) and insertion output number — Ø3 or Ø4

X20 = Name
12 characters maximum
upper- and lower-case alphanumeric characters and _ / and spaces are valid.

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 20).

X21 = *Lock* mode — Ø = Mode 0; 1 = Mode 1; 2 = Mode 2 (**default**)

X22 = Scaler preset — ØØ1 – 128

X23 = Firmware version number to second decimal place (*x.xx*)

X24 = Verbose firmware version-description-upload date/time (see the **Query firmware version (verbose)** command on page 14).

X25 = Voltage — Positive or negative voltage and magnitude

X26 = Internal temperature — Degrees Celsius

X27 = Fan speed — RPM

X28 = Picture adjustments — ØØØ through 127 (Ø64 = **default**)

X29 = Position and size

±1Ø24Ø — Horizontal position specified from left, Vertical position specified from top

X30 = Active pixels and active lines

Dependent on the input signal and selected scaling.

X31 = Aspect ratio fill or follow

1= fill; 2 = follow

X32 = Overscan percentage

Ø = 0% (**default**) 1 = 2.5% 2 = 5.0%

X33 = Test pattern

ØØ = Disable (**default**)
Ø1 = Crop
Ø2 = Alternating pixels
Ø3 = Crosshatch
Ø4 = Color bars
Ø5 = Grayscale
Ø6 = Blue mode
Ø7 = Crop and pink noise (Ch. 1/2, 48 Hz, 24-bit)

X34 = Duration

Ø = Output sync instantly disabled when no active video input is selected
ØØ1 through 5ØØ (seconds)
5Ø1 = Output sync never times out (**default**)

X35 = Screen saver status

Ø = Active input detected, timer is not running
1 = No active input, timer is running, output sync is still active
2 = No active input, timer is expired, output sync is disabled.

X36 = Scaler output resolution and rate

	Refresh rate (Hz)							
	23.98	**24**	**25**	**29.97**	**30**	**50**	**59.94**	**60**
640x480								11
800x600								14
1024x768								2Ø
1280x768								29
1280x800								32
1280x1024								35
1360x768								41
1366x768								47
1440x900								53
1400x1050								56
1600x900								58
1680x1050								6Ø
1600x1200								62
1920x1200								64
480p							65	66
576p						67		
720p			68	69	7Ø	71	72	**73***
1080i						74	75	76
1080p	77	78	79	8Ø	81	82	83	84
2048x1080 (2k)	85	86	87	88	89	9Ø	91	92

*** Default**

X37 = Captive screw or UART	**Ø** = Captive screw RS-232 insert (**default**) 1 = Ethernet RS-232 insert (UART)
X38 = Port #	Ø2 — Ø5 = UARTs 2 — 5 (DTP input and output ports) Ø2 = Input 7 Ø3 = Input 8 Ø4 = Output 3 Ø5 = Output 4
X39 = Baud rate	9600, 19200, 38400, 115200
X40 = Parity	**o**dd, **e**ven, **n**one, **m**ark, **s**pace (only the first letter required) (**n = default**)
X41 = Data bits	7, 8
X42 = Stop bits	1, 2
X43 = Port timeout interval (in 10-second increments)	1 (= 10 seconds) - 65000 (**default** is 30 = 300 seconds = 5 minutes)

NOTE: X38 through X43 are variables for the RS-232 inserts. These variables are repeated on page 19 as X51 through X55 and X58 for the rear panel Remote RS-232 port.

X45 = UART starting point	The starting point (X45) is the rear panel Remote RS-232 port. The next two positions (X45+1 and X45+2) are DTP inputs. The next two positions (X45+3 and X45+4) are DTP outputs. **Default values**: 2000 = Rear panel Remote (RS-232) port 2001 and 2002 = Input 7 and input 8 2003 and 2004 = Output 3 and output 4

Command and Response Table for Matrix Switcher Commands

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Create Ties			
NOTES: • Commands can be entered back-to-back in a string, with no spaces. For example: 1*1!Ø2*Ø3%Ø2*Ø3$4*4!. • The quick multiple tie and tie input to all output commands activate all I/O switches simultaneously. • The matrix switchers support 1- and 2-digit numeric entries (1*1 or Ø2*Ø2).			
Tie input video and audio to output	X1*X2!	OutX2•InX1•All↵	Tie the input X1 video and audio to output X2.
Example:	1*3!	Out03•In01•All↵	Tie input 1 video and audio to output 3.
Tie input video only to output	X1*X2%	OutX2•InX1•Vid↵	Audio breakaway.
Example:	7*5%	Out05•In07•Vid↵	Tie input 7 video to output 5.
Tie input audio only to output	X1*X2$	OutX2•InX1•Aud↵	Audio breakaway.
Example:	8*4$	Out04•In08•Aud↵	Tie input 8 audio to output 4.
Untie input video and audio	Ø*X2!	OutX2•InØØ•All↵	Untie the video and audio input from output X2.
Quick multiple tie	Esc+QX1*X2!...X1*X2$←	Qik↵	
Example:	Esc+Q3*4!3*3%3*2$←	Qik↵	Tie input 3 video and audio to output 4, tie input 3 video to output 3, and tie input 3 audio to output 2.
Tie input to all outputs, video and audio	X1*!	InX1•All↵	
Example:	5*!	In05•All↵	Tie input 5 video and audio to all outputs.
NOTE: Ø*! clears all ties.			
Tie input to all outputs, video only	X1*%	InX1•Vid↵	Audio breakaway.
Example:	1Ø*%	In1Ø•Vid↵	Tie input 10 video to all outputs.
Tie input to all outputs, audio only	X1*$	InX1•Aud↵	Audio breakaway.
Read ties			
Read video output tie	X2%	X1↵	Video input X1 is tied to output X2.
Read audio output tie	X2$	X1↵	Audio input X1 is tied to output X2.
EDID commands			
NOTES: • See **table 1**, on the next two pages for X3 values. • Leading zeroes are optional for the entry of the inputs (X1s) and EDID values (X3s). Leading zeroes are reported in the response. • For the Save (EscSX3EDID←) and Inport (EscIX3,X4EDID←) commands, X3 is valid only in the range of 75 through 82.			
Assign EDID data to an input	EscAX1*X3EDID←	EdidAX1*X3↵	Assign an EDID value of X3 to input X1.
Example:	EscA7*36EDID←	EdidAØ7*Ø36↵	Assign an EDID value of 1280x720 at 60 Hz to input 7.
Assign EDID data to all inputs	EscAX3*EDID←	EdidAX3↵	Assign an EDID value of X3 to all inputs.
View EDID input assignment	EscAX1EDID←	X3↵	
NOTE: The "EdidA" portion of the View command response appears only when the switcher is in Verbose mode 2 or 3 (see the **Verbose Mode** SIS command on page 19).			
Save output EDID to user assigned slot	EscSX3EDID←	EdidSX3↵	Save the output 1 EDID to location X3.
Example:	EscS133EDID←	EdidS133↵	Save the output 1 EDID to user location 1.
Import EDID to user slot	EscIX3,X4EDID←	EdidIX3↵	
Export EDID	EscEX3,X4EDID←	EdidEX3↵	

NOTE:
X1 = Input number — ØØ – Ø8 (ØØ = untied input)
X2 = Output number — ØØ – Ø4 (ØØ = untied output)
X3 = EDID value (resolution and rate) — See **table 1** on the next page.
X4 = EDID filename — *nnnnn*.bin. Can include a full path name. File carries 128 or 256 bytes of data.

Table 1. EDID Values

X3	Source or value	X3	Source or value	X3	Source or value	X3	Source or value
Assigned output values							
Ø1	Output 1	Ø2	Output 2	Ø3	Output 3	Ø4	Output 4
DVI – PC values							
Ø5	1024x768 @ 50 Hz	13	1280x1024 @ 50 Hz	21	1440x900 @ 50 Hz	29	1920x1080 @ 50 Hz
Ø6	1024x768 @ 60 Hz	14	1280x1024 @ 60 Hz	22	1440x900 @ 60 Hz	3Ø	1920x1080 @ 60 Hz
Ø7	1280x720 @ 50 Hz	15	1360x768 @ 50 Hz	23	1600x900 @ 50 Hz	31	1920x1200 @ 50 Hz
Ø8	1280x720 @ 60 Hz	16	1360x768 @ 60 Hz	24	1600x900 @ 60 Hz	32	1920x1200 @ 60 Hz
Ø9	1280x768 @ 50 Hz	17	1366x768 @ 50 Hz	25	1600x1200 @ 50 Hz	33	2048x1080 @ 50 Hz
1Ø	1280x768 @ 60 Hz	18	1366x768 @ 60 Hz	26	1600x1200 @ 60 Hz	34	2048x1080 @ 60 Hz
11	1280x800 @ 50 Hz	19	1400x1050 @ 50 Hz	27	1680x1050 @ 50 Hz		
12	1280x800 @ 60 Hz	2Ø	1400x1050 @ 60 Hz	28	1680x1050 @ 60 Hz		
HDMI – PC values, 2-channel Audio							
35	1024x768 @ 50 Hz	42	1280x1024 @ 60 Hz	49	1440x900 @ 50 Hz	56	1680x1050 @ 60 Hz
36	1024x768 @ 60 Hz	43	1360x768 @ 50 Hz	5Ø	1440x900 @ 60 Hz	57	1920x1200 @ 50 Hz
37	1280x768 @ 50 Hz	44	1360x768 @ 60 Hz	51	1600x900 @ 50 Hz	58	1920x1200 @ 60 Hz
38	1280x768 @ 60 Hz	45	1366x768 @ 50 Hz	52	1600x900 @ 60 Hz	59	2048x1080 @ 50 Hz
39	1280x800 @ 50 Hz	46	1366x768 @ 60 Hz	53	1600x1200 @ 50 Hz	6Ø	2048x1080 @ 60 Hz
4Ø	1280x800 @ 60 Hz	47	1400x1050 @ 50 Hz	54	1600x1200 @ 60 Hz		
41	1280x1024 @ 50 Hz	48	1400x1050 @ 60 Hz	55	1680x1050 @ 50 Hz		
HDMI HDTV							
61	480p @ 60 Hz 2-channel audio	65	720p @ 50 Hz multi-channel audio	69	1080i @ 50 Hz multi-channel audio	73	1080p @ 50 Hz multi-channel audio
62	576p @ 50 Hz 2-channel audio	66	720p @ 60 Hz multi-channel audio	7Ø	1080i @ 60 Hz multi-channel audio	74	1080p @ 60 Hz multi-channel audio
63	720p @ 50 Hz 2-channel audio	67	1080i @ 50 Hz 2-channel audio	71	1080p @ 50 Hz 2-channel audio		
64*	720p @ 60 Hz 2-channel audio	68	1080i @ 60 Hz 2-channel audio	82	1080p @ 60 Hz 2-channel audio		
User – Assigned EDIDs							
75	User assigned 1	77	User assigned 3	79	User assigned 5	81	User assigned 7
76	User assigned 2	78	User assigned 4	8Ø	User assigned 6	82	User assigned 8

***** Default value

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Video mutes			
Mute video only	X2*1B	VmtX2*1↵	Mute output X2 video (video off, sync on).
Mute video and sync	X2*2B	VmtX2*2↵	Mute output X2 video and sync.
Unmute video	X2*ØB	VmtX2*Ø↵	Unmute output X2 video (video on).
Read video mute	X2B	X5↵	X5 = 1 = enable (muted) Ø = disable (unmuted) (**default**).
Global video mute	1*B	Vmt1↵	Mute all video outputs.
Global video and sync mute	2*B	Vmt2↵	Mute all video and sync outputs.
Global video unmute	Ø*B	VmtØ↵	Unmute all video outputs.
Audio routing selections			
NOTE: These commands select between the audio embedded in the digital video stream and the 2-channel analog audio.			
Input audio selection	EscIX1*X6AFMT←	AfmtIX1*X6↵	Use audio from the X6 source.
Example 1:	EscI1*1AFMT←	AfmtIØ1*1↵	Use analog audio from the analog audio port of input 1.
Example 2:	EscI1*ØAFMT←	AfmtIØ1*Ø↵	Auto (**Ø**): Digital audio takes priority over analog audio.
View input audio selection	EscIX1AFMT←	X6↵	
View all input audio selections	EscIAFMT←	X6¹X6²X6³ ... X6ⁿ↵	8 sequential audio input selections, starting from input 1.
Output audio HDMI select	EscOX2*X7AFMT←	AfmtOX2*X7↵	When audio is broken away from video, embed audio from the X7 source in the video output.
Example:	EscO3*ØAFMT←	AfmtOØ3*Ø↵	When audio is broken away from video, use the embedded audio from the input port when creating an audio breakaway tie to output 3.
View output audio breakaway selection	EscOX2AFMT←	X7↵	
View output audio breakaway selection, all outputs	EscOAFMT←	X7¹X7²X7³X7⁴↵	4 sequential audio output selections, starting from output 1.
Audio input format			
View detected digital input audio format	Esc4Ø*X1STAT←	X8↵ 4ØSTATX1*X8↵	Format detected on input X1 is X8. Verbose mode 2 or 3 response.
Input reports as an HDCP-authorized device			
HDCP authorized device on	EscEX1*1HDCP←	HdcpEX1*1↵	Set the input as an HDCP authorized device.
HDCP authorized device off	EscEX1*ØHDCP←	HdcpEX1*Ø↵	Set the input as not an HDCP authorized device.
View HDCP authorized status	EscEX1HDCP←	X9↵	Show HDCP authorized device status.
HDMI output settings			
Set output HDCP mode to auto	EscSX2*ØHDCP←	HdcpSX2*Ø↵	Set output X2 HDCP to auto.
Set output HDCP mode to on	EscSX2*1HDCP←	HdcpSX2*1↵	Set output X2 HDCP to on (always encrypted).
View output HDCP mode	EscSX2HDCP←	X10↵	

NOTE:

X1 = Input number	Ø1 – Ø8		
X2 = Output number	Ø1 – Ø4		
X5 = Enable or available	Ø = Disable	1 = Enable	
X6 = Input audio source	Ø = Auto (see *example 2* above)		
	1 = HDMI (de-embedded digital audio) (default)		2 = Analog 2-channel audio
X7 = Output audio source	Ø = Original HDMI audio	1 = Embed audio	2 = None
X8 = Detected input audio format	Ø = None	1 = 2-channel	2 = 3-channel or bitstream
X9 = HDCP authorized device	Ø = Off	1 = On (**default**)	
X10 = HDCP output	Ø = Auto	1 = On (always encrypted)	

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
HDCP status			
View input HDCP status	Esc I X1 HDCP ←	X11 ↵	
View HDCP status of all inputs	Esc IHDCP ←	X11[1] X11[2] X11[3] ... X11[8] ↵	
View output HDCP status	Esc O X2 HDCP ←	X12 ↵	
View HDCP status of all outputs	Esc OHDCP ←	X12[1] X12[2] X12[3] X12[4] ↵	
Output format			
Set output format	Esc X2 * X13 VTPO ←	Vtpo X2 * X13 ↵	
View output format	Esc X2 VTPO ←	X13 ↵	
Output video bit depth			
Set bit depth	Esc X2 * X14 BITD ←	Bitd X2 * X14 ↵	
View bit depth	Esc X2 BITD ←	X14 ↵	
View ties and mutes			
Read video output tie	X2 %	X1 ↵	Video input X1 is tied to output X2.
Example:	7%	Ø2 ↵	Input 2 video is tied to output 7.
Read audio output tie	X2 $	X1 ↵	Audio input X1 is tied to output X2.
Example:	3$	Ø6 ↵	Input 6 audio is tied to output 3.
View output mutes	Esc VM ←	Mut X15[1] X15[2] X15[3] X15[4] ↵	Each X15 is the mute status of an output: left = output 1, right = output 4).
NOTE: The "Mut" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
Input sync detection			
View all input connections	ØLS	Frq ØØ • X16[1] X16[2] ... X16[8] ↵	Each X16 is the connection status of an input, starting from input 1.
NOTE: The "FrqØØ•" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
Example:	ØLS	No input detected / Sync detected Response Status: Ø Ø Ø 1 1 1 Ø 1 ↵ Input: 1 2 3 4 5 6 7 8	
XTP/HDBaseT/XTP switch positions			
Check input switch position	Esc I X17 HDBT ←	X18 ↵ HdbtI X17 * X18 ↵	Verbose mode 0 and 1. Verbose mode 2 and 3.
Check output switch position	Esc O X19 HDBT ←	X18 ↵ HdbtO X19 * X18 ↵	Verbose mode 0 and 1. Verbose mode 2 and 3.

NOTE:

- X1 = Input number — Ø1 – Ø8
- X2 = Output number — Ø1 – Ø4
- X11 = HDCP status (for inputs) — Ø = No source device connected; 1 = Source connected is HDCP-compliant; 2 = Source connected is not HDCP-compliant
- X12 = HDCP status (for outputs) — Ø = No monitor connected; 1 = Monitor connected, does not support HDCP; 2 = Monitor connected, supports HDCP, ,the video signal is not encrypted; 3 = Monitor connected, supports HDCP, the video signal is encrypted
- X13 = Video format — Ø = Auto (HDMI RGB Full to CEA sink or DVI to non-CEA sink); 1 = DVI (RGB 444, no audio, no InfoFrames); 2 = HDMI RGB Full (RGB 444, 000 - 255 audio, InfoFrames); 3 = HDMI RGB Limited (RGB 444, 016 - 255 audio, InfoFrames); 4 = HDMI YUV Full (RGB 444, 000 - 255 audio, InfoFrames); 5 = HDMI YUV Limited (RGB 444, 016 - 255 audio, InfoFrames); 6 = HDMI YUV Full (RGB 422, 000 - 255 audio, InfoFrames); 7 = HDMI YUV Limited (RGB 422, 016 - 255 audio, InfoFrames)
- X14 = Output video bit depth — Ø = Auto (default); 1 = 8-bit
- X15 = Video mute status — Ø = No mutes; 1 = Video mute; 2 = Video and sync
- X16 = Input signal status — Ø = No signal detected; 1 = Sync detected
- X17 = TP and insertion input number — Ø7 or Ø8
- X18 = Switch position — Ø = DTP; 1 = HDBT (output only); 2 = XTP
- X19 = TP (scaled) and insertion output number — Ø3 or Ø4

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Names			
NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 20).			
Write input name	Esc X1 , X20 NI ←	Nmi X1 , X20 ↵	
Example:	Esc 1 , Podium camNI ←	NmiØ1 , Podium cam ↵	Name input 1 "Podium cam".
Read input name	Esc X1 NI ←	X20 ↵	
Write output name	Esc X2 , X20 NO ←	Nmo X2 , X20 ↵	
Example:	Esc 1 , Main PJ1NO ←	NmoØ1 , Main PJ1 ↵	Name output 1 "Main PJ1".
Read output name	Esc X2 NO ←	X20 ↵	
Write preset name	Esc X22 , X20 NG ←	Nmg X22 , X20 ↵	
Example:	Esc 1 , Security 1NG ←	NmgØ1 , Security 1 ↵	Name preset 1 "Security 1".
Read preset name	Esc X22 NG ←	X20 ↵	
Example:	Esc 2NG ←	Security 2 ↵	
Write EDID name	Esc 2 X3 * X20 UNAM ←	Unam X3 * X20 ↵	
NOTE: For the Write, Clear, and Read EDID Name commands, X3 is valid only in the range of 75 through 82 (User EDID slots 1 through 8).			
Example:	Esc E75*Slot 1UNAM ←	Unam75*Slot 1 ↵	Name EDID location 75 "Slot 1".
Clear EDID name	Esc E X3 *•UNAM ←	UnamE75*USER *n* ↵	*n* = 1 through 8.
Read EDID name	Esc E X3 UNAM ←	X20 ↵	
Write scaler preset name	Esc 2*X22 , X20 PNAM ←	Pnam2*X22 , X20 ↵	
Example:	Esc 2*5 , preset 1PNAM ←	Pnam2*Ø05 , preset 1 ↵	Name scaler preset 5 "preset 1".
Read scaler preset name	Esc 2*X22 PNAM ↵	X20 ↵	
Executive modes			
Lock all front panel functions	1X	Exe1 ↵	Enable *Lock* mode 1.
Lock advanced front panel functions	2X	Exe2 ↵	Enable *Lock* mode 2.
Unlock all front panel functions	ØX	ExeØ ↵	Enable *Lock* mode 0.
View lock status	X	X21 ↵	

NOTE:

X1 = Input number	ØØ – Ø8 (ØØ = untied input)		
X2 = Output number	Ø1 – Ø4 (ØØ = untied output)		
X3 = EDID value (resolution and rate)	See **table 1** on page 10.		
X17 = TP and insertion input number	Ø7 or Ø8		
X18 = Switch position	Ø = DTP	1 = HDBT (output only)	2 = XTP
X19 = TP (scaled) and insertion output number	Ø3 or Ø4		
X20 = Name	Up to 12 upper- and lower-case alphanumeric characters and _ / and spaces		
X21 = *Lock* mode	Ø = Mode 0	1 = Mode 1	2 = Mode 2 (**default**)
X22 = Scaler preset	ØØ1 – 128		

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Information requests			
Information request	I	DTPCP84↵	
Request part number	N	60-*nnnn-nn*↵	See the Extron website for the part number.

NOTE: There are up to three separate sets of Extron firmware on which the switcher can report: the controller firmware, which is the overall control firmware; the Ethernet protocol firmware, which handles the Ethernet interface; and the latest optional Extron firmware update, which is available at **www.extron.com**.

Query controller firmware version	Q	X23↵	
Example:	Q	1.23↵	The factory-installed controller firmware version is 1.23 (sample value only).
Query controller firmware version (verbose)	ØQ	X23-X24-X24↵	Detailed status of the controller firmware and any firmware upgrade. The active firmware is marked by an asterisk (*). A caret (^) indicates a bad checksum or an invalid load. ?.?? indicates that firmware is not loaded.

Response description: Ethernet protocol firmware version-controller firmware version-updated firmware version

Example: Øq → See below

Description | * indicates the version running | Upload date and time

1.23-1.00(1.06LX-DTPCP84 -Tue, Ø8 Apr 2014 00:00:00 UTC)-1.00*(1.06LX-DTPCP84 -Mon, 21 Apr 2014 16:39:21 UTC)↵

Ethernet protocol firmware | DTP CrossPoint firmware version | Updated firmware version

Request system status	S	StsØØ*X25•X26•X27•X27↵	

NOTE: The "StsØØ*" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.

Response description: Power supply•Temperature Celsius•Fan 1 RPM•Fan 2 RPM↵

Example: S →

Temperature is 35.0 °C | Fan 2 rotating at 2004 RPM

12.25•35.ØØ•1976•2ØØ4↵

Power supply at 12.25V

View and erase file directory

NOTE: The response to the View File Directory command differs, depending on whether the command is sent via an RS-232 or Telnet connection or sent via a Web browser connection.

View file directory RS-232 port and Telnet	EscDF←	See below: *filename*1•*date*/*time*•*length*↵ *filename*2•*date*/*time*•*length*↵ • • • • *filenamen*•*date*/*time*•*length*↵ # *of*·Bytes·Left↵↵	List user-supplied files.
View file directory Web browser	EscDF←	See below: Var•file•=•new•array•(); File•[1]•=•'*filename*1,*date*1,*filesize*1'; File•[2]•=•'*filename*3,*date*3,*filesize*3'; • • • • File•[*n*]•=•'*filenamen*,*daten*,*filesizen*'; File•[*n+1*]•=•# *of*•Bytes•Left	List user-supplied files.
Erase user-supplied web page/files	Esc*filename*EF←	Del•*filename*↵	

NOTE:
- X23 = Firmware version number to second decimal place (*x.xx*)
- X24 = Verbose firmware version-description-upload date/time.
- X25 = Voltage — Positive or negative voltage and magnitude
- X26 = Internal temperature — Degrees Celsius
- X27 = Fan speed — RPM

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Scaler Output Commands			
Brightness			
Set a specific brightness value	Esc X19 * X28 BRIT ←	Brit X19 * X28 ↵	Specify the brightness adjustment.
Increment brightness value	Esc X19 + BRIT ←	Brit X19 * X28 ↵	Increase the brightness setting by one.
Decrement brightness value	Esc X19 – BRIT ←	Brit X19 * X28 ↵	Decrease the brightness setting by one.
View the brightness value	Esc X19 BRIT ←	X28 ↵	Show the brightness setting.
Contrast			
Set a specific contrast value	Esc X19 * X28 CONT ←	Cont X19 * X28 ↵	Specify the contrast adjustment.
Increment contrast value	Esc X19 + CONT ←	Cont X19 * X28 ↵	Increase the contrast setting by one.
Decrement contrast value	Esc X19 – CONT ←	Cont X19 * X28 ↵	Decrease the contrast setting by one.
View the contrast value	Esc X19 CONT ←	X28 ↵	Show the contrast setting.
Detail			
Set a specific detail value	Esc X19 * X28 HDET ←	Hdet X19 * X28 ↵	Specify the detail adjustment.
Increment detail value	Esc X19 + HDET ←	Hdet X19 * X28 ↵	Increase the detail setting by one.
Decrement detail value	Esc X19 – HDET ←	Hdet X19 * X28 ↵	Decrease the detail setting by one.
View the detail value	Esc X19 HDET ←	X28 ↵	Show the detail setting.
Horizontal shift			
Specify a value	Esc X19 * X29 HCTR ←	Hctr X19 * X29 ↵	Set the horizontal location of first active pixel in output X19.
Increment value	Esc X19 – HCTR ←	Hctr X19 * X29 ↵	Increment the value by one pixel (shift the image to the right).
Decrement value	Esc X19 + HCTR ←	Hctr X19 * X29 ↵	Decrement the value by one pixel (shift the image to the left).
View	Esc X19 HCTR ←	X29 ↵	Show the horizontal location of first active pixel in output X19.
Vertical shift			
Specify a value	Esc X19 * X29 VCTR ←	Vctr X19 * X29 ↵	Set the vertical location of first active line in output X19.
Increment value	Esc X19 + VCTR ←	Vctr X19 * X29 ↵	Increment the value by one line (shift up).
Decrement value	Esc X19 – VCTR ←	Vctr X19 * X29 ↵	Decrease the value by one line (shift down).
View	Esc X19 VCTR ←	X29 ↵	Show the vertical location of first active line in output X19.
Horizontal size (image)			
Specify a value	Esc X19 * X29 HSIZ ←	Hsiz X19 * X29 ↵	Set the horizontal of output X19.
Increment value	Esc X19 – HSIZ ←	Hsiz X19 * X29 ↵	Increment the value by one pixel (make one pixel wider).
Decrement value	Esc X19 + HSIZ ←	Hsiz X19 * X29 ↵	Decrement the value by one pixel (make one pixel narrower).
View	Esc X19 HSIZ ←	X29 ↵	Show the horizontal size of output X19.
Vertical size (image)			
Specify a value	Esc X19 * X29 VSIZ ←	Vsiz X19 * X29 ↵	Set the vertical of output X19.
Increment value	Esc X19 – VSIZ ←	Vsiz X19 * X29 ↵	Increment the value by one pixel (make one pixel taller).
Decrement value	Esc X19 + VSIZ ←	Vsiz X19 * X29 ↵	Decrement the value by one pixel (make one pixel shorter).
View	Esc X19 VSIZ ←	X29 ↵	Show the vertical size of output X19.

NOTE:

X19	= TP (scaled) and insertion output number	Ø3 or Ø4
X28	= Picture adjustments	ØØØ through 127 (Ø64 = default)
X29	= Position and size	±1Ø24Ø (Horizontal is specified from left, vertical from top)

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Compound image position and size			
Specify all size and position values	Esc X19 , X29 * X29 * X29 * X29 XIMG ←	Ximg X19 , X29 * X29 * X29 * X29 ↵	
Example:	Esc 3,+Ø*+Ø*2ØØØ*1ØØØXIMG ←	Ximg3,+ØØØØØ*+ØØØØØ*Ø2ØØØ*Ø1ØØØ ↵	
View all size and position values	Esc X19 XIMG ←	X29 * X29 * X29 * X29 ↵	
View active pixels and lines			
View active pixels	Esc X19 APIX ←	Apix X19 * X30 ↵	
NOTE: The "Apix X19 *" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
View active lines	Esc X19 ALIN ←	Alin X19 * X30 ↵	
NOTE: The "Alin X19 *" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
View defaults	Esc V X19 SPEC ←	SpecV X19 * X30 * X30 * X29 * X29 ↵	Show active pixels, active lines, total pixels, and total lines.
NOTE: The "SpecV X19 *" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
Aspect ratio			
Set to fill	Esc X19 *1ASPR ←	Aspr X19 *1 ↵	Always fill the output.
Set to follow	Esc X19 *2ASPR ←	Aspr X19 *2 ↵	Follow the input aspect ratio.
View aspect ratio	Esc X19 ASPR ←	X31 ↵	
Execute Auto-Image			
Execute Auto-Image	X19 *A	Img X19 ↵	
Overscan			
NOTE: The Overscan command applies to SMPTE input rates only (NTSC or PAL, 480p to 1080p, 50 Hz or 60 Hz).			
Set overscan value	Esc 6 * X32 OSCN ←	Oscn6 * X32 ↵	
Read overscan value	Esc 6OSCN ←	X32 ↵	
Save and recall scaler presets			
NOTE: If you try to recall a scaler preset that is not saved, the matrix switcher responds with the error code E13.			
Save a scaler preset	2 * X19 * X22 ,	2Spr X19 * X22 ↵	Command character is a comma.
Recall a scaler preset	2 * X19 * X22 .	2Rpr X19 * X22 ↵	Command character is a period.
Example:	2*3*5.	2Rpr3*Ø5 ↵	Recall preset 5, which becomes the current configuration.
Erase a scaler preset	Esc X2 * X22 PRST ←	PrstX2 * X22 ↵	
Show scaler preset availabilities	51#	PreI X5[1] X5[2] X5[3] ... X5[128] ↵	Each X5 is the availability status of a scaler preset, starting from preset 1.
NOTE: The "PreI" portion of the response appears only when the switcher is in *Verbose* mode 2 or 3.			
Auto memories			
Enable auto memories	Esc X19 *1AMEM ←	Amem X19 *1 ↵	Set auto memories on. Previous settings for the incoming signal are recalled.
Disable auto memories	Esc X19 *ØAMEM ←	Amem X19 *Ø ↵	Set auto memories off.
Show auto memory status	Esc X19 AMEM ←	X19 ↵	

NOTE:

X5 = Available	Ø = Not available	1 = Available
X19 = TP (scaled) and insertion output number	Ø3 or Ø4	
X28 = Picture adjustments	ØØØ through 127 (Ø64 = default	
X29 = Position and size	±1Ø24Ø	Horizontal is specified from left, vertical from top
X30 = Active pixels and active lines	Dependent on the input signal and selected scaling.	
X32 = Overscan percentage	Ø = 0% (default)	1 = 2.5% 2 = 5.0%
X31 = Aspect ratio fill or follow	1= fill; 2 = follow	
X22 = Scaler preset	ØØ1 – 128	

Command and Response Table for Matrix Switcher Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Test pattern			
Enable a test pattern	Esc X19 *X33 TEST ←	Test X19 *X33 ↵	
Disable test patterns	Esc X19 *Ø TEST ←	Test X19 *Ø ↵	
View test pattern selection	Esc X19 TEST ←	X33 ↵	
Screen saver timeout and status			
Set screen saver to go black immediately	Esc T X19 *ØSSAV ←	SsavT X19 *ØØØ ↵	Disable sync whenever no input video is selected.
Set screen saver timeout duration	Esc T X19 *X34 SSAV ←	SsavT X19 *X34 ↵	Blank output X19 after X34 seconds.
Example:	Esc T3*3ØØSSAV ←	SsavT3*3ØØ ↵	Blank output 3 after 300 seconds (5 minutes).
Set screen saver to never go black	Esc T X19 *5Ø1SSAV ←	SsavT X19 *5Ø1 ↵	Do not blank output X19.
View screen saver timeout duration	Esc T X19 SSAV ←	X34 ↵	
View screen saver status	Esc S X19 SSAV ←	X35 ↵	
Scaler output rate			
Set scaler output rate	Esc X19 *X36 RATE ←	Rate X19 *X36 ↵	Set the scaler to output X36 on output X19.
Example:	Esc 3*75RATE ←	Rate3*73 ↵	Set the scaler to output 720p video at 60 Hz on output 3.
View scaler output rate	Esc X19 RATE ←	X36 ↵	
RS-232 Insertion Commands			
Captive screw and Ethernet serial port insertion enables			
Enable an input captive screw serial port insertion	Esc I X17 *ØLRPT ←	LrptI X17 *Ø ↵	Enable the captive screw serial port insert on input X17. This disables the Ethernet RS-232 insert.
Enable an input Ethernet serial port insertion	Esc I X17 *1LRPT ←	LrptI X17 *1 ↵	Enable the Ethernet serial port insert on input X17. This disables the captive screw serial port insert.
Set all RS-232 input insertions	Esc I X37 *LRPT ←	LrptI X37 ↵	
View input insertion	Esc I X17 LRPT ←	X37 ↵	
View all input insertions	Esc ILRPT ←	X37[7] X37[8] ↵	One X37 for both available inputs, starting at input 7.
Enable an output captive screw serial port insertion	Esc O X19 *ØLRPT ←	LrptO X19 *Ø ↵	Enable the captive screw serial port insert on output X19. This disables the Ethernet serial port insert.
Enable an output Ethernet serial port insertion	Esc O X19 *1LRPT ←	LrptO X19 *1 ↵	Enable the Ethernet serial port insert on output X19. This disables the captive screw serial port insert.
Set all RS-232 output insertions	Esc O X37 *LRPT ←	LrptO X37 ↵	
View RS-232 output insertion	Esc O X19 LRPT ←	X37 ↵	
View all output insertions	Esc OLRPT ←	X37[3] X37[4] ↵	One X37 for both available outputs, starting at output 3.

NOTE:

X17 = TP and insertion input number	Ø7 or Ø8	
X19 = TP (scaled) and insertion output number	Ø3 or Ø4	
X34 = Duration	Ø = Output sync instantly disabled when no active video input is selected	
	ØØ1 through 5ØØ (seconds)	
	5Ø1 = Output sync never times out (default)	
X35 = Screen saver status	Ø = Active input detected, timer is not running	
	1 = No active input, timer is running, output sync is still active	
	2 = No active input, timer is expired, output sync is disabled.	
X36 = Scaler output resolution and rate	See the table on page 58.	
X37 = Captive screw or UART	Ø = Captive screw RS-232 insert	1 = Ethernet RS-232 insert (UART) (default)
X33 = Test pattern	ØØ = Disable (default)	Ø4 = Color bars
	Ø1 = Crop	Ø5 = Grayscale
	Ø2 = Alternating pixels	Ø6 = Blue mode
	Ø3 = Crosshatch	Ø7 = Crop and pink noise (Ch. 1/2, 48 Hz, 24-bit)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Ethernet and serial port insert parameters			
Set serial port parameters	Esc X38 * X39 , X40 , X41 , X42 CP ←	Cpn X38 • Ccp X39 , X40 , X41 , X42 ↵	
Read serial port parameters	Esc X38 CP ←	X39 , X40 , X41 , X42 ↵	
Configure current port timeout	Esc Ø * X43 TC ←	PtiØ * X43 ↵	
Read current port timeout	Esc ØTC ←	X43 ↵	
Configure global IP port timeout	Esc 1 * X43 TC ←	Pti1 * X43 ↵	
Read global IP port timeout	Esc 1TC ←	X43 ↵	
Set UART start point	Esc X45 MD ←	Pmd X45 ↵	Sets the initial (lowest) port number for the range of numbers assigned to the serial port and UARTs.
Read UART start point	Esc MD ←	X45 ↵	

NOTE:

X38 = Port #
- Ø1 = Remote (RS-232) port
- Ø2 — Ø5 = UARTs 1 — 5 (DTP input and output ports)

X39 = Baud rate
- 300, 600, 1200, 1800, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 57600, 115200 (default=9600)

X40 = Parity
- **o**dd, **e**ven, **n**one, **m**ark, **s**pace (only the first letter required) (**n** = default)

X41 = Data bits
- 7, 8

X42 = Stop bits
- 1, 2

X43 = Port timeout interval (in 10-second increments)
- 1 (= 10 seconds) - 65000 (default is 30 = 300 seconds = 5 minutes)

X45 = UART starting point
- The starting point (X45) is the rear panel Remote RS-232 port.
- The next two positions (X45+1 and X45+2) are DTP inputs.
- The next two positions (X45+3 and X45+4) are DTP outputs.
- Default values:
  - 2000 = Rear panel Remote (RS-232) port
  - 2001 and 2002 = Input 7 and input 8
  - 2003 and 2004 = Output 3 and output 4

IP Port Specific SIS Commands

The DTP CrossPoint 84 includes a built-in IPCP Pro control processor that supports the LAN ports and other functionality. See the *IPCP Pro Series User Guide* at **www.extron.com** for SIS commands unique to the IPCP control processor.

Remote Port Specific and Communications Protocol SIS Commands

Symbol definitions for Remote port specific SIS commands

X50 = Password — Up to 12 alphanumeric characters

NOTE: The HTML language reserves certain characters for specific functions (see **Special Characters** on page 20).

X51 = Port number — Ø1 = Remote (RS-232) port; Ø2 — Ø5 = UARTs 1 — 5 (DTP input and output ports)

X52 = Baud rate — 9600 (**default**), 19200, 38400, 115200

X53 = Parity — **o**dd, **e**ven, **n**one, **m**ark, **s**pace (only the first letter required) (**n = default**)

X54 = Data bits — 7, 8 (**default**)

X55 = Stop bits — 1 (**default**), 2

NOTE: X51 through X55 and X58 are variables for the rear panel Remote RS-232 port. These variables are repeated on page 8 as X38 through X43 for the RS-232 inserts.

X56 = Port type — Ø = RS-232 (**default**) 1 = RS-422 (not available on DTP CrsossPoint)

X57 = Verbose mode — Ø = Clear or none (default for Telnet connection); 1 = Verbose mode (default for RS-232 or USB connection); 2 = Tagged responses for queries; 3 = Verbose mode and tagged for queries

NOTE: If tagged responses is enabled (modes 2 and 3), all read commands return the constant string and the value as the set command does (for example, the read matrix name command Esc CN←, returns Ipn•X20↵).

X58 = Port timeout interval (in 10-second increments) — 1 (= 10 seconds) - 65000 (default is 30 = 300 seconds = 5 minutes)

SIS Command and Response Table for Remote and Communications Protocol Commands

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Set administrator password	Esc X50 CA←	Ipa•X50↵	
Read administrator password	Esc CA←	X50↵	
Reset (clear) administrator password	Esc•CA←	Ipa•↵	
Set user password	Esc X50 CU←	Ipu•X50↵	
Read user password	Esc CU←	X50↵	
Reset (clear) user password	Esc•CU←	Ipu•↵	
Set serial port parameters	Esc X51 *X52,X53,X54,X55 CP←	Cpn X51 •Ccp X52,X53,X54,X55↵	
Read serial port parameters	Esc X51 CP←	X52,X53,X54,X55↵	
Configure flow control	Esc X51 *Y86,Y87 CF←	Cpn X51 •Cfl Y86,Y87↵	
Read flow control	Esc X51 CF←	Y86,Y87↵	
Configure receive timeout	Esc X51 *Y88,Y89 CE←	Cpn X51 •Cce Y88,Y89,Y90,Y91↵	
NOTE: The configure command is sufficient as shown for most users, with the priority (Y90) and length or delimiter (Y91) omitted). The response in this case is "Cpn X51 •Cce Y88,Y89,Ø,ØØØØØL↵," with the default Y90 and Y91 values returned.			
Read receive timeout	Esc X51 CE←	Y88,Y89,Y90,Y91↵	
Set mode	Esc X51 *X56 CY←	Cpn X51 •Cty X56↵	
Read mode	Esc X51 CY←	X56↵	
Set verbose mode	Esc X57 CV←	Vrb X57↵	
Read verbose mode	Esc CV←	X57↵	
Configure current port timeout	Esc Ø*X58 TC←	PtiØ*X58↵	
Read current port timeout	Esc ØTC←	X58↵	
Configure global IP port timeout	Esc 1*X58 TC←	Pti1*X58↵	
Read global IP port timeout	Esc 1TC←	X58↵	

Special Characters

The HTML language reserves certain characters for specific functions. The switcher does not accept these characters as part of names, passwords, or locally created file names.

The switcher rejects the following characters:
{space (spaces **are** Ok for names)} + ~ , @ = ‘ [ ] { } < > ’ “ semicolon (;) colon (:) | \ and ?.

DSP SIS Commands

Command and Response Table for SIS Commands

Many digital signal processor (DSP) functions; gain (which includes the mix-points), trim, mutes, and group masters 1 and 2; can be controlled using SIS commands. These commands follow the same general rules as basic SIS commands, but the variables (Yns) tend to be more complex. Also, a comprehensive understanding of the audio signal flow of the DSP is helpful to understanding these commands. Thumbnails of the controls are provided in the tables that follow for reference

Symbol Definitions

↵ = Carriage return and line feed
← = Carriage return (no line feed)
| = Pipe (can be used interchangeably with the ← character)
• = space
Esc = Escape key
W = Can be used interchangeably with the Esc character

X60	= Object ID (gain control or mix-point)	See the tables on pages XX through XX.
X61	= Level value; depends on control	-100.0 dB to +80.0 dB, in 0.1 dB increments. Example: 56 = 5.6 dB.

NOTE: The valid range of the level for a specific control depends on the control addressed.

X62	= Mute and phantom power status	Ø = unmute (pass audio) or off 1 = mute or on
X63	= Group master group number	Ø1 – 32
X64	= Group fader setting	dB value, in 0.1 dB increments. The valid range depends on the type of gain block
X65	= Group fader increment	dB value, in 0.1 dB increments, to raise or lower a group fader
X66	= Group fader soft limit	dB value, in 0.1 dB increments. X66 must be within the range for the gain block grouped in X63.
X67	= Group type	6= gain 12 = mute

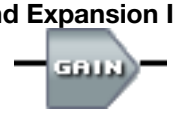
Line Input Gain Blocks

Input 1	Gain	Trim	Input 5	Gain	Trim
Left	30000	30100	Left	30008	30108
Right	30001	30101	Right	30009	30109
Input 2	**Gain**	**Trim**	**Input 5**	**Gain**	**Trim**
Left	30002	30102	Left	30010	30110
Right	30003	30103	Right	30011	30111
Input 3	**Gain**	**Trim**	**Input 7**	**Gain**	**Trim**
Left	30004	30104	Left	30012	30112
Right	30005	30105	Right	30013	30113
Input 4	**Gain**	**Trim**	**Input 8**	**Gain**	**Trim**
Left	30006	30106	Left	30014	30114
Right	30007	30107	Right	30015	30115

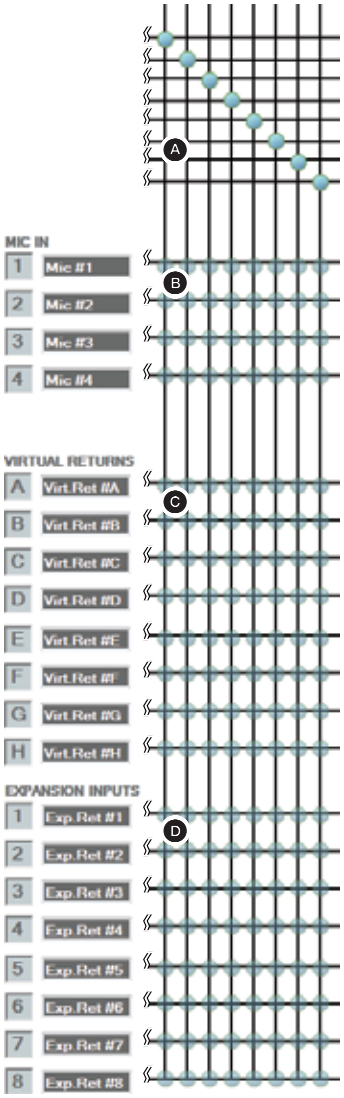
Mic Input Gain Blocks

	Input Gain	Pre-mixer Gain		Input Gain	Pre-mixer Gain
Input 1	40000	40100	**Input 3**	40002	40102
Input 2	40001	40101	**Input 4**	40003	40103

Post-switcher Gain Blocks			
Output 1	**Gain**	**Output 3**	**Gain**
Left	50000	Left	50004
Right	50001	Right	50005
Output 2	**Gain**	**Output 4**	**Gain**
Left	50002	Left	50006
Right	50003	Right	50007

Virtual Returns and Expansion Inputs Gain Blocks 			
	Gain		**Gain**
Virtual Return A	50100	**Expansion Input 1**	50200
Virtual Return B	50101	**Expansion Input 2**	50201
Virtual Return C	50102	**Expansion Input 3**	50202
Virtual Return D	50103	**Expansion Input 4**	50203
Virtual Return E	50104	**Expansion Input 5**	50204
Virtual Return F	50105	**Expansion Input 6**	50205
Virtual Return G	50106	**Expansion Input 7**	50206
Virtual Return H	50107	**Expansion Input 8**	50207

Mixer blocks, part 1



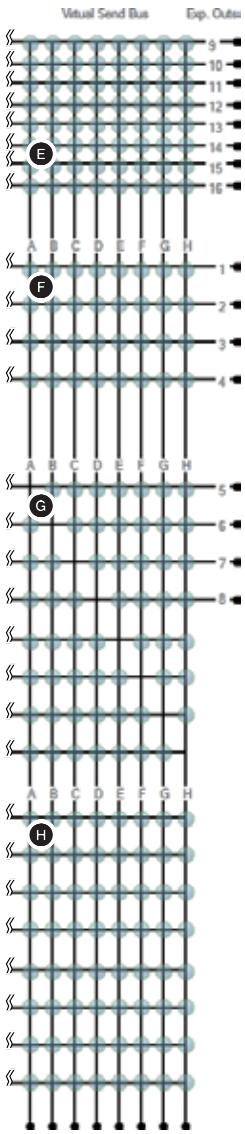
Switcher-to-output mixer block (A)	Out 1	Out 2	Out 3	Out 4	Out 5	Out 6	Out 7	Out 8
Output 1								
Left	20000							
Right		20101						
Output 2								
Left			20202					
Right				20303				
Output 3								
Left					20404			
Right						20505		
Output 4								
Left							20606	
Right								20707

Mic-to-output mixer block (B)								
Mic in 1	20800	20801	20802	20803	20804	20805	20806	20807
Mic in 2	20900	20901	20902	20903	20904	20905	20906	20907
Mic in 3	21000	21001	21002	21003	21004	21005	21006	21007
Mic in 4	21100	21101	21102	21103	21104	21105	21106	21107

Virtual returns-to-output mixer block (C)								
V. rtn A	21200	21201	21202	21203	21204	21205	21206	21207
V. rtn B	21300	21301	21302	21303	21304	21305	21306	21307
V. rtn C	21400	21401	21402	21403	21404	21405	21406	21407
V. rtn D	21500	21501	21502	21503	21504	21505	21506	21507
V. rtn E	21600	21601	21602	21603	21604	21605	21606	21607
V. rtn F	21700	21701	21702	21703	21704	21705	21706	21707
V. rtn G	21800	21801	21802	21803	21804	21805	21806	21807
V. rtn H	21900	21901	21902	21903	21904	21905	21906	21907

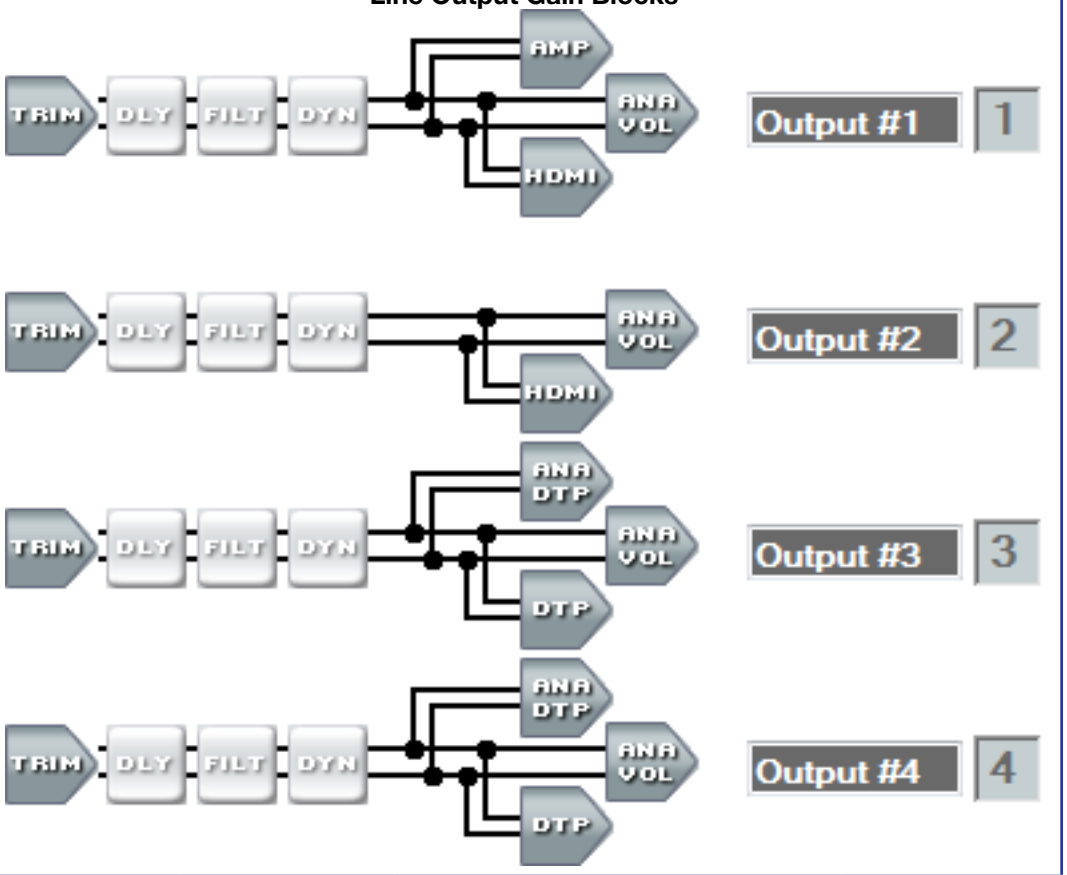
Expansion inputs-to-output mixer block (D)								
Exp. in 1	22000	22001	22002	22003	22004	22005	22006	22007
Exp. in 2	22100	22101	22102	22103	22104	22105	22106	22107
Exp. in 3	22200	22201	22202	22203	22204	22205	22206	22207
Exp. in 4	22300	22301	22302	22303	22304	22305	22306	22307
Exp. in 5	22400	22401	22402	22403	22404	22405	22406	22407
Exp. in 6	22500	22501	22502	22503	22504	22505	22506	22507
Exp. in 7	22600	22601	22602	22603	22604	22605	22607	22607
Exp. in 8	22700	22701	22702	22703	22704	22705	22706	22707

Mixer blocks, part 2



	V. Send A	Out 2	Out 3	Out 4	Out 5	Out 6	Out 7	Out 8
Switcher-to-virtual-send-bus mixer block (E)								
Output 1								
Left	20Ø08	20Ø09	20Ø10	20Ø11	20Ø12	20Ø13	20Ø14	20Ø15
Right	20108	20109	20110	20111	20112	20113	20114	20115
Output 2								
Left	20208	20209	20210	20211	20212	20213	20214	20215
Right	20308	20309	20310	20311	20312	20313	20314	20315
Output 3								
Left	20408	20409	20410	20411	20412	20413	20414	20415
Right	20508	20509	20510	20511	20512	20513	20514	20515
Output 4								
Left	20608	20609	20610	20611	20612	20613	20614	20615
Right	20708	20709	20710	20711	20712	20713	20714	20715
Mic-to-virtual-send-bus mixer block (F)								
Mic in 1	20808	20809	20810	20811	20812	20813	20814	20815
Mic in 2	20908	20909	20910	20911	20912	20913	20914	20915
Mic in 3	21008	21009	21010	21011	21012	21013	21014	21015
Mic in 4	21108	21109	21110	21111	21112	21113	21114	21115
Virtual returns-to-virtual-send-bus mixer block (G)								
V. rtn A	21208	21209	21210	21211	21212	21213	21214	21215
V. rtn B	21308	21309	21310	21311	21312	21313	21314	21315
V. rtn C	21408	21409	21410	21411	21412	21413	21414	21415
V. rtn D	21508	21509	21510	21511	21512	21513	21514	21515
V. rtn E	21608	21609	21610	21611	21612	21613	21614	21615
V. rtn F	21708	21709	21710	21711	21712	21713	21714	21715
V. rtn G	21808	21809	21810	21811	21812	21813	21814	21815
V. rtn H	21908	21909	21910	21911	21912	21913	21914	21915
Expansion inputs-to-virtual-send-bus mixer block (H)								
Exp. in 1	22008	22009	22010	22011	22012	22013	22014	22015
Exp. in 2	22108	22109	22110	22111	22112	22113	22114	22115
Exp. in 3	22208	22209	22210	22211	22212	22213	22214	22215
Exp. in 4	22308	22309	22310	22311	22312	22313	22314	22315
Exp. in 5	22408	22409	22410	22411	22412	22413	22414	22415
Exp. in 6	22508	22509	22510	22511	22512	22513	22514	22515
Exp. in 7	22608	22609	22610	22611	22612	22613	22614	22615
Exp. in 8	22708	22709	22710	22711	22712	22713	22714	22715

Line Output Gain Blocks



Output 1	**Trim**	**Amp Output**	**Analog Volume**	**HDMI Volume**
Left	60100	60300	60000	60200
Right	60101	60301*	60001	60201
Output 2	**Trim**		**Analog Volume**	**HDMI Volume**
Left	60102		60002	60202
Right	60103		60003	60203
Output 3	**Trim**	**Analog DTP**	**Analog Volume**	**Digital DTP**
Left	60104	60304	60004	60204
Right	60105	60305	60005	60205
Output 4	**Trim**	**Analog DTP**	**Analog Volume**	**Digital DTP**
Left	60106	60306	60006	60206
Right	60107	60307	60007	60207

* Not used on MA (mono amplifier) model.

Command and Response Table for DSP SIS Commands

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Audio trim, gain, and mixing			
NOTES: • The command format is the same, regardless of the control or mix-point that is to be set; the acceptable adjustment range varies depending on the control or mix-point: • All X61 values are in 0.1 dB increments. Example: 56 = 5.6 dB. • The valid range of the level for a specific control depends on the control addressed: • The line audio input gain range is –18 dB to +24 dB (X61 = –180 to +240). • The mic input gain range is –18 dB to 80 dB (X61 = –180 to +800). • The line input trim and line output trim range is –12 to +12 dB (X61 = –120 to +120). • The mic pre-mixer gain, line out post-switcher gain, and pre-mixer gain range is –100 dB to +12 dB (X61 = –1000 to +120). • The mix-points (with their associated mixing controls) range is –35 dB to +25 dB (X61 = –350 to +250). • The line output gain range is –100 to 0 dB (X61 = –1000 to 0). • For attenuation, the negative sign (–) must be entered and is reported in the response. For gain, the positive sign (+) is optional and is not returned in the response.			
Set an analog DSP trim, gain, or mix-point	EscGY60*X61AU←	DsGY60*X61↵	Set object ID (Y60) to a level of X61.
Example 1:	EscG300*12*56AU←	DsG300*12*56↵	Set the input 7 left gain to a value of 5.6 dB.
Example 2:	EscG2080*–125AU←	DsG2080*–125↵	Set the mic input 1 gain to a level of –12.5 dB.
Read an analog DSP trim or mix-point	EscGY60AU←	X61↵	Object ID Y60 is set to a value of X61.
Example 1:	EscG5005AU←	105↵	Post-switcher output 4 right is set to +10.5 dB.
Example 2:	EscG6031AU←	–955↵	Set the output 1 amplified audio output to -95 dB. This response is not possible on an MA model switcher.
Set a digital DSP trim, gain, or mix-point	EscHY60*X61AU←	DsHY60*X61↵	Set object ID (Y60) to a level of X61.
Example:	EscH6024*-780AU←	DsH6024*-780↵	Set the output 3 left digital DTP gain to a value of –78 dB.
Read a digital DSP trim or mix-point	EscHY60AU←	X61↵	Object ID Y60 is set to a value of X61.
Example:	EscH3013AU←	75↵	Line input 2 right trim is set to +7.5 dB.
Audio mute			
Audio mute	EscMY60*1AU←	DsMY60*1↵	Mute object ID Y60.
Example:	EscM6006*1AU←	DsM6006*1↵	Mute output 4, left, analog volume.
Audio unmute	EscMY60*0AU←	DsMY60*0↵	Unmute object ID Y60.
Example:	EscM4000*0AU←	DsM4000*0←	Unmute mic input 1 gain (pass audio).
Read audio mute	EscMY60AU←	X62↵	X62: 0 = mute off, 1 = mute on.
Phantom power			
NOTE: The phantom power commands are valid only for the mic input gain object IDs (Y60s 40000 through 40003).			
Phantom power on	EscZY60*1AU←	DsZY60*1↵	Turn phantom power on for object ID Y60.
Example:	EscZ40000*1AU←	DsZ40000*1↵	Turn phantom power on for mic 1.
Phantom power off	EscZY60*0AU←	DsZY60*0↵	Turn phantom power off for object ID Y60.
Read phantom power status	EscZY60AU←	DsZY60*X62↵	X62: 0 = phantom power off, 1 = phantom power on.

Command and Response Table for DSP SIS Commands (continued)

Command Function	SIS Command (Host to Unit)	Response (Unit to Host)	Additional description
Group masters			
NOTES: • A group must have assigned members for these commands to have an effect. • For X61, a positive (+) value is assumed unless a negative (-) value is specified. • If entering a X61 value outside the valid range for the group or outside the soft limits, the DTP CrossPoint responds with an invalid parameter (E13) error.			
Set a group fader control	Esc D X63 * X61 GRPM ↵	GrpmD X63 * X61 ↵	Set the group fader to a value of X61.
Example:	Esc D2*-293*GRPM ↵	GrpmD2*-293 ↵	Set the group 2 fader control to -29.3 dB.
Raise a group fader control	Esc D X63 * X65 +GRPM ↵	GrpmD X63 * X64 ↵	Increase the level of the X63 group fader by X65 dB.
Example:	Esc D2*3Ø+GRPM ↵	GrpmD*-263 ↵	Raise the group 2 fader 3 dB (from -29.3 dB to -26.3 dB, starting from the level set in the **Set a group fader control** example, above.
Lower a group fader control	Esc D X63 * X65 -GRPM ↵	GrpmD X63 * X64 ↵	Decrease the level of the X63 group fader by X65 dB.
View the group fader control level	Esc D X63 GRPM ↵	GrpmD X63 * X61 ↵	In verbose modes 1 and 2, the response is simplified to X64 ↵.
Mute a group mute control	Esc D X63 *1GRPM ↵	GrpmD X63 *1 ↵	Mute all blocks in group X63.
Clear (unmute) a group mute control	Esc D X63 *ØGRPM ↵	GrpmD X63 *Ø ↵	Umute all blocks in group X63.
View a group mute control	Esc D X63 GRPM ↵	X62 ↵	
Set soft limits	Esc L X63 * X66 upper * X66 lower GRPM ↵	GrpmL X63 * X66 * X66 ↵	Set the groups soft limits to X66 and X66.
Example:	Esc L2*+6Ø*-6ØGRPM ↵	GrpmL2*6Ø*–6Ø ↵	Set the upper soft limit for the group 2 fader to +6.0 dB and the lower limit to -6.0 dB.
View soft limits	Esc L X63 GRPM ↵	GrpmL X63 * X66 * X66 ↵	In verbose modes 0 and 1, the response is simplified to X66*X66 ↵.
View group type	Esc P X63 GRPM ↵	GrpmP X63 * X67 ↵	Show the group type (X67) for group X63. In verbose modes 0 and 1, the response is simplified to X67 ↵.
View group members	Esc O X63 GRPM ↵	GrpmO X63 * Y60 1 * Y60 2 *...* Y60 16 ↵	Y60 is the control or mix-point. In verbose modes 0 and 1, the response is simplified to Y60 1 * Y60 2 *...* Y60 16 ↵.

Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America, and Central America:
Extron Electronics
1230 South Lewis Street
Anaheim, CA 92805
U.S.A.

Japan:
Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

Europe and Africa:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Asia:
Extron Asia Pte Ltd
135 Joo Seng Road, #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions, or if modifications were made to the product that were not authorized by Extron.

NOTE: If a product is defective, please call Extron and ask for an Application Engineer to receive an RA (Return Authorization) number. This will begin the repair process.

USA: 714.491.1500 or 800.633.9876
Asia: 65.6383.4400
Europe: 31.33.453.4040
Japan: 81.3.3511.7655

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

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